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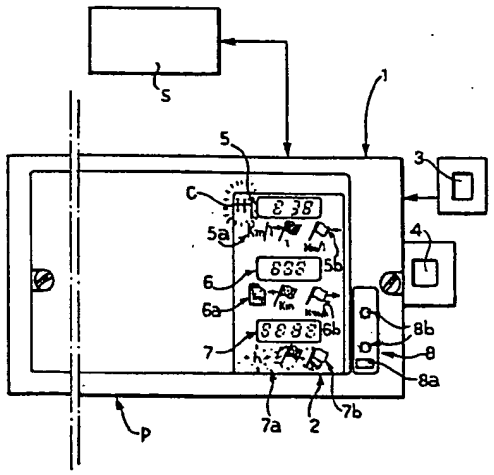
(54) **Display device for motor vehicles.**

(57) The visual display device is intended for connection to a processing system which detects parameters characteristic of the instantaneous operational state of a motor vehicle and parameters characteristic of the change of this operational state within time. The device includes a visual display unit (2) having separate zones (5, 6, 7) each of which is intended for the presentation, in alternation, of at least one pair of the said signals, and a selector (3) connected to the visual display unit (2) and the operation of which causes the simultaneous alternation of the respective signals on each of the said zones (5, 6, 7).



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"Display device for motor vehicles".

The present invention relates to visual display devices and relates particularly to a device for connection to a processing system which monitors parameters characteristic of the instantaneous operational state of a motor vehicle and parameters characteristic of the variation of this operational state with time and which produces signals indicative of the value of these parameters.

Processing systems of the type indicated above are described in Italian utility model application no. 53309-B/80 of the 18.6.1980 and Italian patent application no. 68068-A/81 in the name of the same applicant.

The object of the present invention is to provide a visual display device of the type specified above which is particularly simple and efficient to use and allows the driver of a motor vehicle to receive information on the operational state of the motor vehicle itself clearly and rapidly.

In order to achieve this object, the present invention provides a visual display device of the type specified above characterised in that it comprises:

- a visual display unit having separate zones each of which is intended for the presentation, in alternation, of at least one pair of the said signals, and
- a selector connected to the visual display unit, the operation of which produces the simultaneous alternation of the respective signals on each of the said zones.

By virtue of this characteristic it is possible to provide a very efficient visual display device from the point of view of the ergonomics of driving, which does not, for example, result in substantial distraction of the driver of a motor vehicle while he notes the operational state of the vehicle itself.

The advantages resulting from the invention will become clear from the description which follows, given purely by way of non-limiting example, with reference to the appended drawing which illustrates a dashboard of a motor vehicle, including a visual display device according to the invention.

In the drawing the visual display device according to the invention, generally indicated 1, is illustrated in one of its possible states within a dashboard P of a motor vehicle (not illustrated).

The device includes a visual display unit 2 and a pair of push buttons 3, 4 located adjacent the visual display unit 2 and acting respectively as a selector and a reset switch according to the criteria which will be set out more particularly below.

The unit 2 includes three display zones 5, 6, 7 having segment-type digital display elements.

Two indicators 5a, 5b having ideographic characters are associated with the visual display zone 5.

A similar pair of indicators indicated 6a, 6b and 7a, 7b, respectively are associated with each of the visual display zones 6 and 7.

In the embodiments illustrated, the zones 5, 6, and 7 are vertically aligned with each other. The

indicators 5a, 6a, 7a and the indicators 5b, 6b, and 7b have a similar disposition.

The visual display device illustrated is intended for connection to a processing system S which monitors parameters characteristic of the operational state of the motor vehicle, and produces with the additional use of further signals which are presented by other instruments (not illustrated) of the dashboard P, signals indicative of the instantaneous value of the fuel consumption, the time, the date, the average fuel consumption, the range of the vehicle on the basis of the instantaneous consumption and the quantity of fuel present in the tank, the average speed of the motor vehicle and the time which has elapsed from an initial instant input into the processing system itself.

The visual display zone 5 is intended for the presentation of signals corresponding to the instantaneous fuel consumption and the average consumption of fuel. The visual display zone 6 is however intended for the presentation of the signals indicative of the range of the motor vehicle and of the average speed of the motor vehicle, while the visual display zone 7 is intended for the display of the time (or the date) and of the time which has elapsed since the initial instant indicated above.

Three auxiliary push buttons 8 are associated with the visual display zone 7 serving as the clock, one of which, indicated 8a, controls the substitution for information relating to the time with that relating to the date while the other two, indicated 8b, are

intended to allow the precise adjustment of the time and of the date.

The push button 3 is connected to the processing system S and acts on the visual display unit 2 so that when it is in its released condition, signals corresponding to the instantaneous fuel consumption, the range of the motor vehicle and the time (or the date) are presented on the zones 5, 6 and 7.

In order to facilitate the identification of the signals displayed the corresponding ideographic indicators 5a, 6a and 7a are activated.

Contemporaneously with the display of these signals on the visual display unit 2, an ideogram, for example, a flashing ideogram C, may appear which indicates the selection of a transmission ratio in the gearbox which is not the optimum for minimising the fuel consumption of the vehicle, the indication of the instantaneous fuel consumption possibly being flashed at the same time.

When the push button 3 is pressed and for several seconds after it has been released, the processing system S outputs a signal which results in the deactivation of the indicators 5a, 6a, 7a and the simultaneous activation of the indicators 5b, 6b and 7b. At the same time, instead of the signals corresponding to the instantaneous fuel consumption, range and time (or the date) there now appear on the visual display zones 5, 6 and 7 signals indicative of the average fuel consumption, the average speed of the motor vehicle and the time which has elapsed since an

initial instant, indicated above. The presentation of these latter signals may possibly be controlled, as well as by the push button 3, also by a sensor (not illustrated) which detects the condition in which the motor vehicle is stopped with the engine on.

The push button 4 is connected to the processing system S to act as a reset switch. Its actuation thus causes the zeroing of the signals (average fuel consumption, average speed, partial time) indicative of the parameters characteristic of the change with time of the fuel consumption, the speed of the motor vehicle, and the time past, and the simultaneous input of a new initial instant into the processing system S. From the instant at which the push button 4 is actuated, the system S starts a new evaluation cycle of the magnitudes (average, partial cumulative value) indicative of the change with time of the operational state of the motor vehicle.

The disposition of parts illustrated thus avoids the simultaneous visual display of an excessive number of signals. In the device illustrated, they are presented in two groups of signals. The two groups are presented as alternatives to each other by operation of the push button 3. The identification of the group of parameters being presented is facilitated by the presence of the indicators 5a, 6a, 7a and 5b, 6b, 7b and the alignment of the indicators corresponding to the members of a single group.

Naturally, the effects of the present invention also extend to embodiments which achieve equal utility

by using the same innovative concept and particularly to visual display devices intended for connection to processing systems of the type described in the patent application no. 53309-B/80 mentioned above, which produce signals corresponding to the remaining part of a journey before a predetermined stage is reached, such as the quantity of fuel, the distance to be travelled before arrival and the time necessary for completion of the journey.

In this case, as illustrated schematically in the drawing, the push button 3, or a member equivalent thereto, will also be able to control the presentation of the signals on the zones 5, 6, 7 and the activation of the corresponding ideographic indicators (chequered flags).

CLAIMS:

1. Visual display device for connection to a processing system which monitors parameters characteristic of the instantaneous operational state of a motor vehicle and parameters characteristic of the change of this operational state with time and which produces signals indicative of the value of these parameters, characterised in that it comprises:

- a visual display unit (2) having separate zones (5, 6, 7) each of which is intended for the presentation, in alternation, of at least one pair of the said signals, and

- a selector (3) connected to the visual display unit (2), the operation of which produces the simultaneous alternation of the respective signals in each of the said zones (5, 6, 7).

2. Device according to Claim 1 for connection to a processing system which produces signals indicative of the value of parameters characteristic of changes in the operational state of the motor vehicle with time starting from an initial predetermined instant, characterised in that it includes a resetting switch (4), the operation of which causes the zeroing of at least some of the signals indicative of the parameters which are characteristic of the change with time of the operational parameters of the motor vehicle and the inputting of a new starting instant in the processing system.

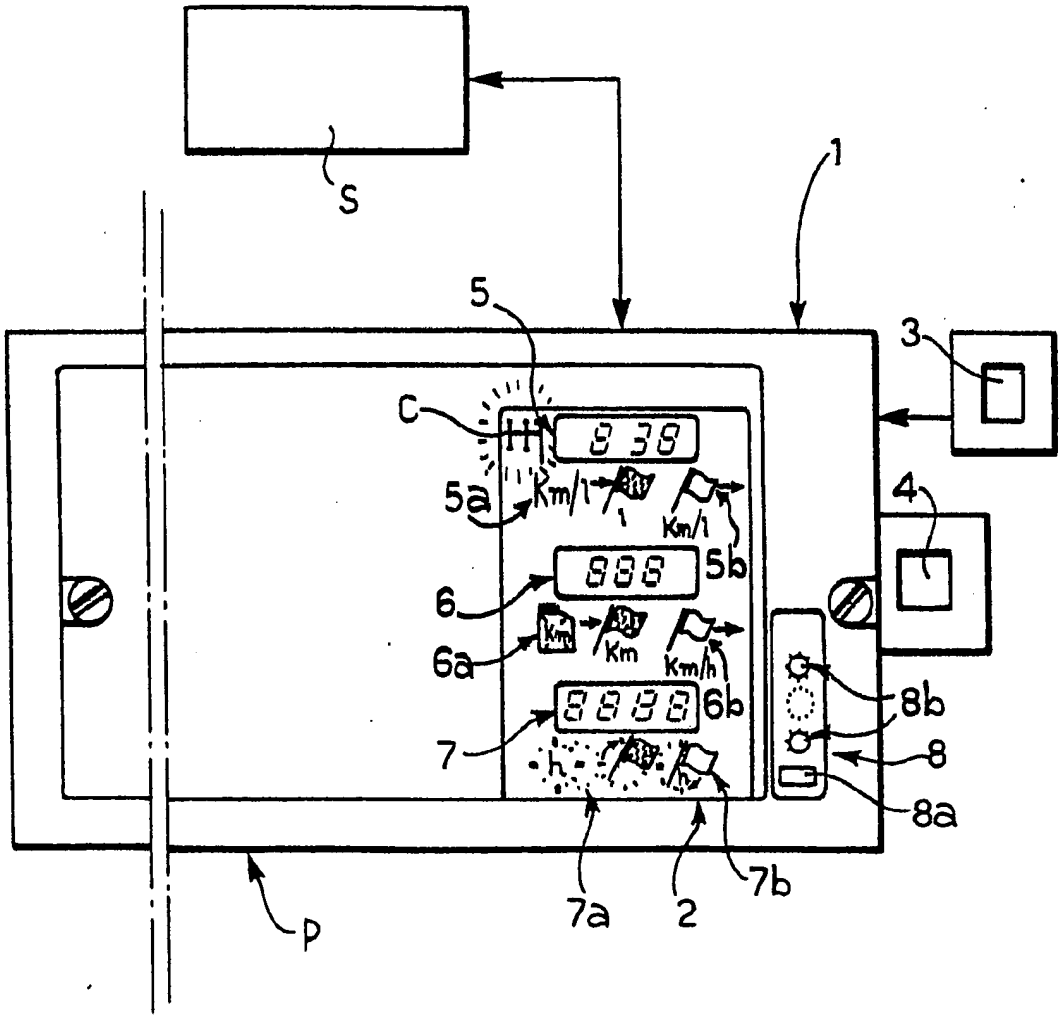
3. Device according to Claim 1 or Claim 2, characterised in that at least two ideographic indicators

(5a, 5b; 6a, 6b; 7a, 7b) are associated with each of the zones (5, 6, 7) and are activated in alternation by the said selector (3) to allow the identification of the signals being presented.

4. Device according to Claim 1, characterised in that segment-type digital visual display elements are associated with at least some of the said zones (5, 6, 7).

5. Device according to Claim 2, characterised in that the said visual display zones (5, 6, 7) are aligned with each other and in that the indicators (5a, 6a, 7a; 5b, 6b, 7b) operated simultaneously by the selector (3) are aligned in a similar manner to the said zones (5, 6, 7).

6. Device according to any one of the preceding claims, characterised in that at least the visual display unit (2) is incorporated in the dashboard (P) of the motor vehicle.


S
1
5
3
C
5a
Km/l
Km/l
4
5b
6
6a
Km
Km/h
6b
8b
7
8
8a
7a
2
7b
P

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EUROPEAN SEARCH REPORT

Application number

EP 83 83 0066

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl ³)
X	FR-A-2 400 238 (BAYERISCHE MOTOREN WERKE A.G.) * Page 12, lines 1-14; figure 1 *	1,4	B 60 Q 9/00
X	DE INGENIEUR, vol. 92, no. 27, July 1980, pages 9-13, Den Haag, NL. J.J. DERKSEN: "Elektronica en de auto" * Figures 6-8 * .	1,4,6	
X	US-A-4 109 235 (BOUTHORS) * Column 3, lines 13-19; column 4, lines 19-22; figures 1,2 *	1,3.	

TECHNICAL FIELDS SEARCHED (Int. Cl ³)

B 60 Q 9/00
G 09 F 9/00
B 60 Q 3/04

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	04-08-1983	ONILLON C.G.A.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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